

*APPLICATION FOR A PERMIT/RENEWAL FOR SCIENTIFIC PURPOSES UNDER THE
ENDANGERED SPECIES ACT*

ATTACHMENT H2

SUPPLEMENTAL PERMIT APPLICATION INFORMATION

Project Supplemental Information

Status of Affected Species

Continuation of information provided on APPS online system:

[Atlantic sturgeon]... has experienced persistent, inappropriate fishing pressure and, likely, overfishing, although information is limited and inconsistent. Dovel and Berggren (1983) estimated that 14,500-36,000 age-1 Atlantic sturgeon were present in the Hudson in 1977. Peterson et al. (2000) estimated that 4,600 age-0 Atlantic sturgeon were present in the Hudson in 1994. The only available estimate of spawner abundance is from Kahnle et al. (2007), who estimated that an average of 870 Atlantic sturgeon (270 females and 600 males) spawned each year from 1985-1995. Since Atlantic sturgeon females are believed to spawn every 2-5 years, this implies a total population of adult females of 540-1350 fish. The Hudson stock of Atlantic sturgeon is thought to be the largest extant reproducing Atlantic sturgeon population (NMFS 2012).

The National Marine Fisheries Service ("NMFS") recently listed the New York Bight Distinct Population Segment ("DPS") of Atlantic sturgeon, which includes the Hudson River stock, as endangered (NMFS 2010). This action was taken because the NMFS' concluded that the New York Bight DPS was at risk due to: (1) low levels of abundance with a limited number of spawning populations; (2) threats to habitat from continued degraded water quality and dredging; (3) threats from bycatch and vessel strikes; and (4) lack of existing regulatory mechanisms to address these threats. NMFS concluded that overutilization for commercial purposes was likely the primary factor in the historical decline of sturgeon populations in the New York Bight, and that inability to control continued bycatch of Atlantic sturgeon in fisheries directed at other species continues to be a serious threat to these populations. .

Lethal Take

Continuation of information provided on APPS online system

Due to variation in the year to year take, in future permits NMFS may want to consider averaging the authorized take for SNS and AS over the life of the permit.

Potential, likely non-lethal take (juveniles and adults): The potential for injury or mortality from interaction with the HRBMP fish collection gear exists on a theoretical basis, but it is negligible based on experience, consistent with gear design, in-place protocols and the hardy nature of this species.

Project Locations and Take Information

Take Information

Continuation of information provided on APPA online system:

The Year Class Reports (YCR) assess river-wide abundance and life stage distribution of all fish species captured during the HRBMP, with a focus on certain representative important species. SNS are occasionally captured during these surveys, and in the case of juveniles and adults, primarily in the Fall Shoals Survey utilizing the 3. Beam Trawl. Under the HRBMP's current NMFS ESA Permit No 1580-1, SNS taken are subject to NMFS special handling and release provisions as detailed in the HRBMP SOPs. Despite extensive sampling effort that the HRBMP represents, SNS capture remains a relatively rare, but potential occurrence. See Attachment C which presents a 10-year SNS take summary from 2001–2010. These data reflect some inter-annual variability, but in all years reflect actual take totals well below the NMFS-authorized take limits and notification provisions (NMFS ESA Permit Nos. 1580-1 and 1254). Again, **it is important to underscore that HRBMP-captured SNS adult and juveniles are not removed from the wild population; rather they are examined, measured, tagged and returned to the river at the location of capture as part of an ongoing mark/recapture effort.** Given the 10-year HRBMP sturgeon take history and the likelihood of a continuance of the current HRBMP program scope, the applicant proposes no changes to the SNS "take" limitations and conditions identified in NMFS ESA Permit No. 1580-1.

Location and Take Tables

Continuation of information provided on APPS online system:

Procedure Column—Applicant is requesting use of visible tags, such as Dart tags, as NMFS determines appropriate. Carlin-Ritchie tags have been used under previous NMFS ESA permits, as authorized by the New York State Department of Environmental Conservation and NMFS. Applicants have been advised that *NOAA Fisheries no longer recommends the use of Carlin Tags, as they have been shown to cause some adverse effects in sturgeon species.*

Lines 3 & 4, "Expected Take"—annual upper estimate. The HRBMP follows a broad survey scope and schedule designed to sample all Hudson River strata and fish life stages from Battery Park (NYC) to River Mile 152, thus AS interactions are estimated.

Line 3 "Life Stage"—Applicant provides the following regarding Atlantic sturgeon life stage designations as appropriate for the HRBMP.

- Of the 283 Atlantic sturgeon collected in the last 12 HRBMP study years for which Atlantic sturgeon weights were recorded (1999-2010) the heaviest specimen weighed 4,300g (941-mm total length)
- Atlantic sturgeon mature at 32,000g for males (about 2m in length) and 68,000g for females (about 2.5m in length) in Hudson River populations (Collette & Klein-MacPhee, 2002)
- Thus HRBMP gear does not capture adult Atlantic sturgeon, if juveniles are defined as "immature"
- **Applicant proposes a combined juvenile + adult take authorization with AS life stage as defined above**

National Environmental Policy Act Considerations

2.) If your activities involve collecting, handling, or transporting potentially infectious agents or pathogens (e.g., biological specimens such as live animals or blood), or using or transporting hazardous substances (e.g., toxic chemicals), provide a description of the protocols you will use to ensure public health and human safety are not adversely affected, such as by spread of zoonotic diseases or contamination of food or water supplies.

Continuation of answer provided on APPS online system:

-All ichthyoplankton samples are preserved in a 10% formalin solution and transported to the laboratory for routine processing.

-SNS biological tissue for the purpose of genetic study and archiving is excised in the field from live SNS specimens, preserved in 90-100% ethanol, and transported to NOAA-NOS under NOAA/NMFS custody protocols.

-With regard to using or transporting hazardous substances (e.g., toxic chemicals), the HRBMP requires that adequate supplies of reagents (formalin and ethanol) and properly selected and labeled containers be available in the field for preserving whole ichthyoplankton samples and fish tissue. In this regard, HRBMP personnel are trained in sample packaging, labeling and transport in accordance with United States Department of Transportation regulations. Employees responsible for the preparation, loading, completion of shipping papers and transporting/unloading of hazardous substances are trained under 49 CFR Sections 172.700 (Training) and 173.6 (Materials of Trade Exceptions). The Hazardous Shipping Training program includes a Hazardous Materials Shipping Protocol and Documentation of Training Certificate stating that the employee has been trained and tested. Refresher training involving review of the Hazardous Materials Shipping Protocol and completing a test occurs every three years; no later than three years from the previous date of training. A 24-hour Emergency Response Number with an emergency responder is available, as documented on the Hazardous Materials Shipping Papers. In addition, personnel receive Hazardous Communication Standard and Formaldehyde Standard training in accordance with 20 CFR Sections 1910.1200 and 1910.1048, respectively. In the New Hampshire laboratory that handles HRBMP samples, a State of New Hampshire Certified Hazardous Waste Coordinator manages hazardous wastes to ensure proper handling, characterization and disposal.

3.) Describe the physical characteristics of your project location, including whether you will be working in or near unique geographic areas such as state or National Marine Sanctuaries, Marine Protected Areas, Parks or Wilderness Areas, Wildlife Refuges, Wild and Scenic Rivers, designated Critical Habitat for endangered or threatened species, Essential Fish Habitat, etc. Discuss how your activities could impact the physical environment, such as by direct alteration of substrate during use of bottom trawls, setting nets, anchoring vessels or buoys, erecting blinds or other structures, or ingress and egress of researchers, and measures you will take to minimize these impacts.

Continuation of answer provided on APPS online system:

To describe the predominant features associated with the study area, Central Hudson Gas and Electric Corporation (CHGEC; 1999) divided the lower river from the Troy Dam to the Battery into five subsections of roughly comparable volume. Beginning at the Troy Dam, the first subsection extends from RM 152 to 94 and includes the Albany, Catskill, and Saugerties study areas. This subsection of the river is relatively narrow and has extensive shoals and numerous tributaries. Within this subsection and approximately 6.2 mi (10 km) south of the Troy Dam, the river is about 574 ft (175 m) wide—the narrowest part of the lower Hudson (Abood et al. 2006). The slope of the river is also greatest in this subsection and generates current velocities greater than in other areas.

The second subsection of the river defined by CHGEC (1999) extends from RM 93 to 56. This subsection contains a series of progressively deeper basins, and the volume of this area is approximately 1.5 times larger than that of the adjacent upriver areas. Shallow shoreline and shoal areas are common only in the southernmost end of this subsection.

The third subsection of the river defined by CHGEC (1999) extends from RM 55 to 39. At this location, the Hudson Highlands land mass forced glaciers through a narrow constriction, resulting in the deepest and most turbulent flow observed in the lower Hudson. Within this subsection, the river channel narrows abruptly, bends sharply to the east, and reaches a depth of over 150 ft (46 m). At the lower portions of this subsection, the river bottom consists of a series of progressively shallower gouges that result in a corrugated bottom that ends in shallow water behind the Hudson Highlands.

The fourth subsection of the river defined by CHGEC (1999) is located from RM 38 to 24. This is the widest and shallowest portion of the lower Hudson River and has the most extensive shoal and shore zone areas. The presence of slow-moving currents and shoal areas results in the deposition of suspended sediment, organic carbon, and nutrients. The major source of suspended sediment to the Hudson is associated with watershed basin runoff and erosion, and basin-wide loads have been estimated at 800,000 tons per year (t/yr; 726,000 MT/yr) (Abood et al. 2006). The presence of slow-moving currents, shoal and shore-zone habitat, and high carbon and nutrient inputs makes this a highly productive portion of the lower Hudson River and provides important spawning and nursery areas for juvenile fish.

The fifth subsection of the river defined by CHGEC (1999) begins at RM 24 (RKM 38) and extends to the river's entrance into New York Harbor. In this subsection, the river again constricts and gradually deepens as it enters New York Harbor. In this location, the river is generally straight and contains few shoal areas or shore-zone habitats. The final 12 mi (19 km) of the lower Hudson have extensive armoring and contain little remaining natural shoreline (CHGEC 1999).

Applicant Response-Potential HRBMP Impact on Physical Environment:

Potential habitat impacts of the HRBMP are negligible and necessary in the context of scientific inquiry. As detailed below, the 1-m epibenthic sled used for the Ichthyoplankton Survey, the 3-m beam trawl used for the Fall Shoals Survey and the 9-

meter otter trawl used for the Striped Bass Survey are designed in a manner sensitive to potential impacts, e.g., by reducing contact with the river bottom during sampling, consistent with their scientific purpose. (Attachment A) As NYSDEC mandates the HRBMP as part of the Generator's SPDES permits, NYSDEC necessarily has determined that the potential impacts to habitat are outweighed by the informational benefits of the HRBMP.

Potential HRBMP impacts to the substrate are minimized by the scale of the gear, the study design itself and adherence to the SOPs (Attachments B-1, B-2 and B-3), specifically:

- The collection gear is relatively small in size and light.
- Tow duration is limited to 5 minutes for epibenthic sled and beam trawl and 10 minutes for the 9-m otter trawl.
- Epibenthic sled and beam trawl bottom sample locations are randomized intra-regionally, reducing the likelihood of repeated substrate disturbance in a given location.
- Note that the Striped Bass Survey does not utilize a stratified random sampling design, however, significantly fewer tows are performed during the Striped Bass Survey than the Ichthyoplankton and Fall Shoals Surveys. To the extent possible, the epibenthic sled and beam trawl are used in areas suitable for towed bottom gear (i.e. free of known obstructions or rocky outcrops). The typical bottom type generally varies from gravel/sand to mud. The epibenthic sled only contacts the bottom along its two ski-shaped "skids" that are 2 m apart, further minimizing the area of disturbance. The beam trawl skids also contact the substrate in two places on each side of the net; there is also contact with the river bottom by the rollers ("cookies") closely spaced along the footrope of the net.
- While river bottom substrate may be disturbed during contact with the epibenthic sled and trawl gear, that disturbance is designed to be superficial and transient. Further, the most sensitive estuarine habitats are typically not subjected to HRBMP trawl gear.

5.) Discuss whether your project involves activities known or suspected of introducing or spreading invasive species, intentionally or not, (e.g., transporting animals or tissues, discharging ballast water, use of equipment at multiple sites). Describe measures you would take to prevent the possible introduction or spread of non-indigenous or invasive species, including plants, animals, microbes, or other biological agents.

Continuation of answer provided on APPS online system:

With the confirmation of the presence of zebra mussel (*Dreissena polymorpha*) in the Hudson River, NYSDEC has established procedures to ensure that vessels and equipment used in scientific sampling of the Hudson River are decontaminated to prevent the spread of this organism to other bodies of water in areas of zebra mussel occurrence." (Attachment B-2; NAI. 2011). The HRBMP procedures for decontamination are in conformance with NYSDEC's decontamination procedures. The primary method used to

decontaminate surfaces that may harbor settled zebra mussels is desiccation. The boat and trailer are parked in full sunlight at temperatures greater than 70°F for 24-hours. If the temperature is less than 70°F the boat and trailer are left in the sunlight for a minimum of five days. If logistic considerations prevent dry storage of the boat and trailer prior to its next use, the boat, trailer and sampling gear are pressure washed with water at temperatures greater than 140°F. All surfaces, including nets are thoroughly sprayed with the high pressure hot water to remove settled zebra mussels. All vegetation and debris entangled on vehicles, trailers, and boats are removed. A decontamination log that details the location and time of the last use of boat, and time of decontamination will accompany each boat